

ABSTRACT

The present invention is directed to a single stage free radical precipitation polymerization process for producing a copolymer involving admixing a solvent, a free-radical-forming agent, (meth)acrylic acid, and at least one monomer selected from the group consisting of styrene, vinyl acetate, methylmethacrylate, butyl acrylate, methyl acrylate, acrylonitrile, and isopropylacrylamide; initiating a free-radical precipitation polymerization to form a plurality of polymer radicals; precipitating a polymer from said polymer radicals; maintaining the admixture of reactants at a temperature above the lower critical solution temperature of said admixture; and controlling the temperature of said admixture to control the rate of propagation of the polymer. The process is useful for producing random copolymers of vinyl acetate or styrene with more than 4 percent and up to greater than 20 percent by weight of (meth)acrylic acid.

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